ThinPrint®

SEH TPG as a ThinPrint Client Gateway

■ TPG-25, TPG-65 and TPG-125

Technical information

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Introduction

The ThinPrint product line offers premium print management for all IT environments. No matter whether server-based, virtualized or distributed PC architecture, with homogeneous or heterogeneous hardware and operating features, with an integrated print server or not. Mobile employees, home employees, as well as complete branch offices can be easily integrated into the existing corporate IT infrastructure without any printing restrictions with regard to flexibility, performance or comfort. Thanks to the high levels of print data compression, secure SSL-encryption, connection-oriented bandwidth control, dynamic printer deployment and technology such as Driver Free Printing and V-Layer, ThinPrint fully meets the requirements for professional print management.

The **ThinPrint Client Gateway (TPG)** can greatly simplify the introduction of ThinPrint solutions because it can receive print jobs for an entire group of desktops and printers, decompress and decrypt them, and then distribute them conventionally in a local network – like a local print server.

The ThinPrint Client Gateways TPG-25, TPG-65 and TPG-125 have been specially developed by SEH for use in ThinPrint environments. IT administrators are not required to install the ThinPrint Client on each individual network printer. On a TPG-25, two network printers can be integrated. The TPG-65 can even allow six devices to be used, the TPG-125 twelve. The ThinPrint Client Gateway receives the compressed, band-width optimized and SSL-encrypted print jobs and transmits the decoded data reliably and securely to the correct printer.

The server components ThinPrint AutoConnect, ThinPrint Connection Service and V-Layer technology ensure smooth integration of the ThinPrint Client Gateway into your existing ThinPrint environment. V-Layer means installation and maintenance of printer drivers on Terminal Servers (Remote Desktop Session Hosts), virtual desktops and client computers is unnecessary, as the original printer drivers are installed on the print server. Thanks to ThinPrint Connection Service, data transfer is always stable and connections from remote locations to the central print server are made easy - without even a PC or local print server required to be made available in branch offices.

ThinPrint Client Gateways are especially suitable for server-based computing environments, with up to twelve network printers per gateway and also for virtual desktop environments. Particularly companies that connect their branch offices via a WAN to a central print server can benefit. Find out in this document more about the use of SEH TPGs as a ThinPrint Client Gateway.

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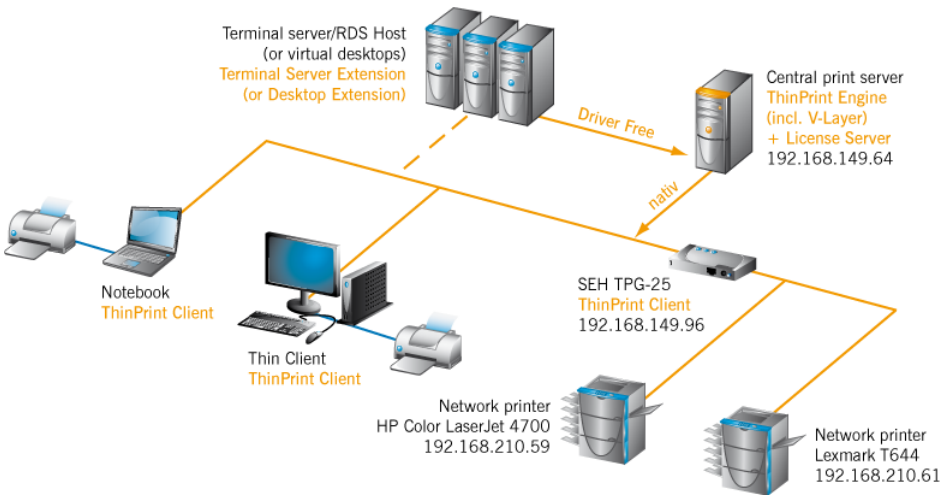
Sample configuration

By way of example, we will assume an environment with two **Windows** servers – a terminal server (Remote Desktop Session Host) and a central dedicated print server. The components necessary for the example in Illus. 1 are:

- At least one PC (as terminal client)
- 1 ThinPrint Client Gateway TPG-25 or TPG-65 or TPG-125
- 2 network printers with their own network card (without integrated ThinPrint Client)
- 1 terminal server[1] – Terminal Server Extension installed
- 1 central print server – ThinPrint Engine and license server installed



Illus. 1 Example configuration

Tips

1. ThinPrint Client Gateway (TPG) receives print jobs exclusively via the protocol TCP/IP (not via ICA/HDX or RDP/RemoteFX).
2. This example illustrates TPG-25 configuration with and without SSL encryption. Other ThinPrint features are similarly described in the following manuals (Page 16):

   - ThinPrint Engine
   - ThinPrint Connection Service

1 with or without Citrix XenApp

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Installation

ThinPrint products are pure software solutions. For safety warnings for your hardware, please consult the technical documentation provided by the respective manufacturer. Also read the user manuals for the TPG-26, TPG-65 or TPG-125 from SEH in particular (Page 16).

Printer and SEH TPG

Connect the TPG and the network cards of both network printers to the network. In this example, we use a TPG-25. The difference between the models is only the design and the number of supported printers.

Client machine(s)

Install a PC or thin client with RDP client (=RDC) or a Citrix ICA client in the network (see Illus. 1).

Central print server

Install the **ThinPrint Engine** onto a Windows server; see Illus. 1 and the *ThinPrint Engine on print servers quick installation* or *ThinPrint Engine* manual; Page 16.

Terminal server

Install **Terminal Server Extension** onto a Microsoft or Citrix terminal server; see *ThinPrint Engine on print servers* manual; Page 16.

Configuration

Network

Assign all devices IP addresses, as for example (Illus. 1):

- for the *TPG-25* 192.168.149.96
- for the *Lexmark* network printer 192.168.210.61
- for the HP network printer 192.168.210.59
- for the central print server 192.168.149.64

Client Gateway SEH TPG

On the TPG, you have to first configure the IP address, then the network printers. Finally, you can configure the certificates (if needed). This is explained below.

Configuring IP address

– If you do not know the IP address of the TPG-25 or if it is not reachable, install and start the SEH management tool, **InterCon-NetTool**[2] on the PC or terminal server (within the same subnet). Find the IP address of the TPG-25 here (Illus. 2).

2 Included in delivery of the TPG

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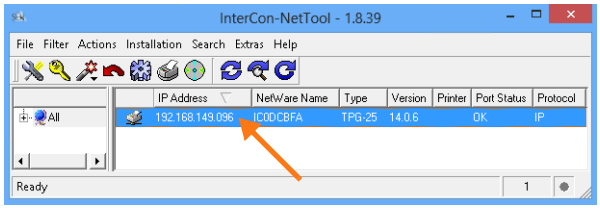

Illus. 2 InterCon-NetTool by SEH: SEH print servers are displayed

– Close the InterCon NetTool. Further configuration can be made with a web browser (Illus. 3).
– Open the TPG web interface using its IP address and click NETWORK (Illus. 3).

Illus. 3 Configuring the TPG-25 with web interface: select NETWORK

– Disable DHCP and enter the desired (static) IP address (Illus. 4). Click SAVE & RESTART. The TPG will restart.

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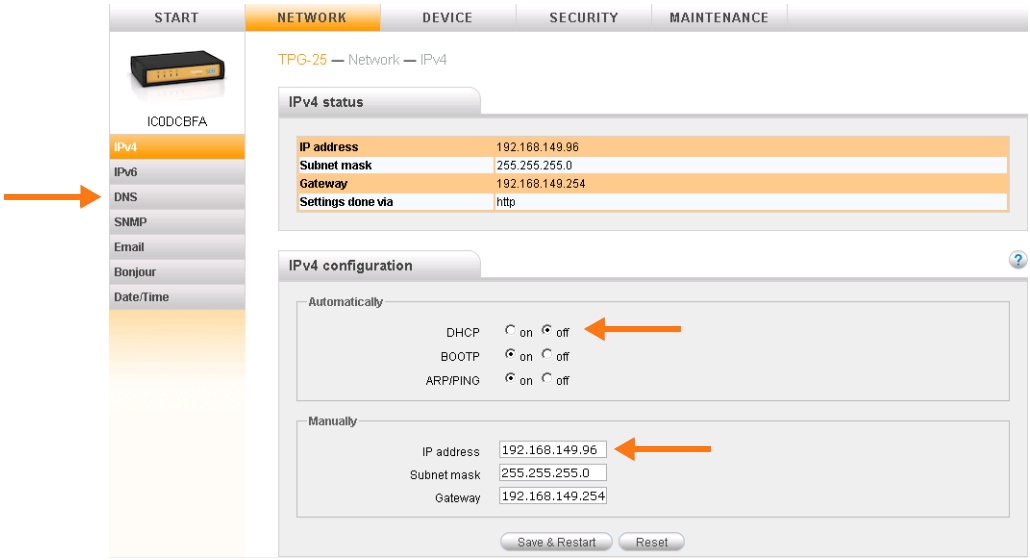
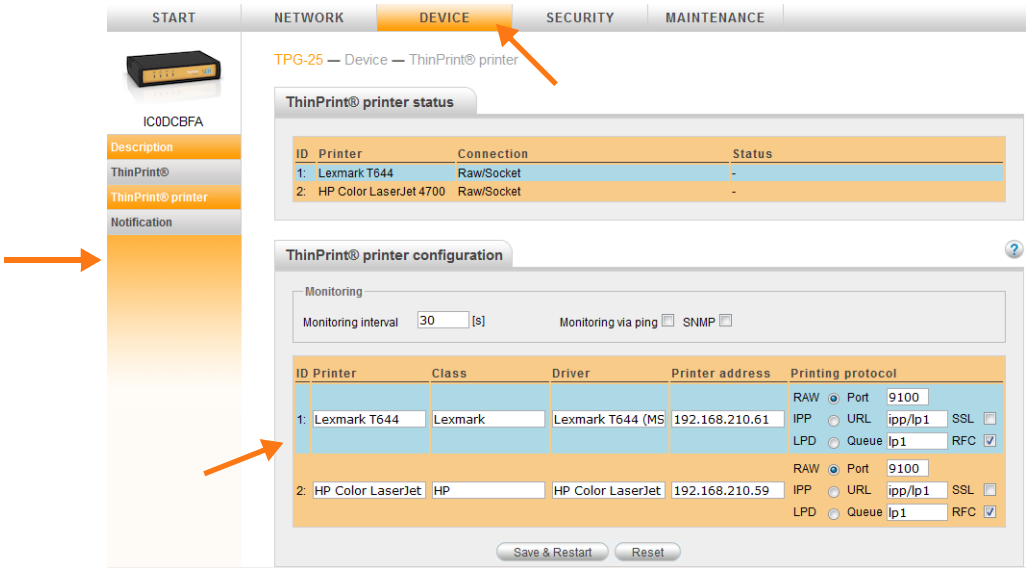


Illus. 4 Web interface: changing the IP address of the TPG-25

Configuring network printers

– Select DEVICE → THINPRINT PRINTER. Set up your network printers as described on Page 5 and confirm by clicking SAVE & RESTART (Illus. 5).



Illus. 5 Set up both network printers and click SAVE & RESTART

Installing an SSL certificate

– If you want to print with encryption, then select SECURITY→ CERTIFICATES in the main window now (Illus. 6, arrows).
– Delete an existing certificate if applicable and click CERTIFICATE REQUEST (Illus. 6).

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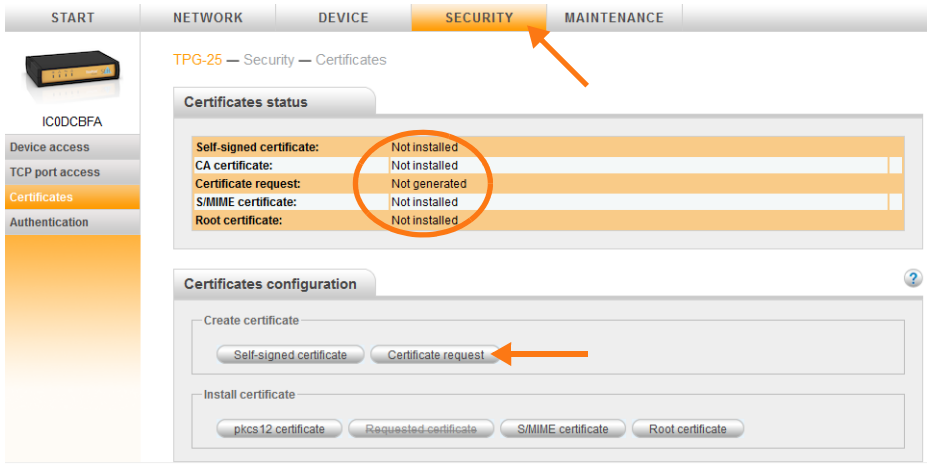
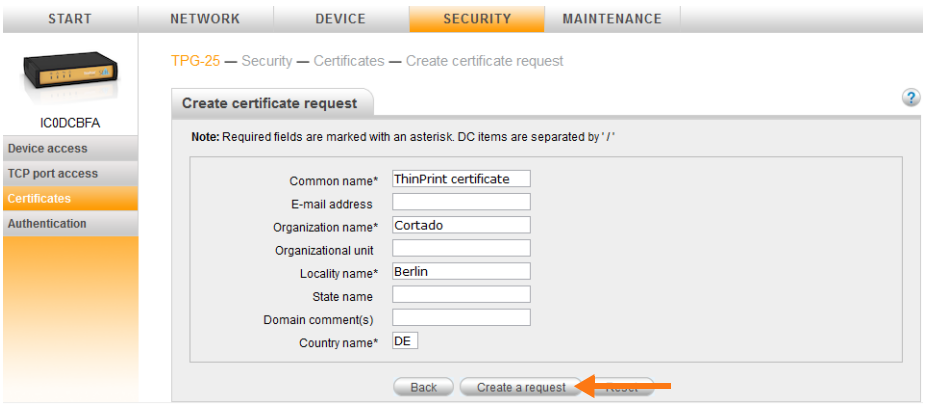


Illus. 6 TPG-25 web page: select CERTIFICATE REQUEST

– Fill in at least the mandatory fields, which are marked with an asterisk (*). Next, click CREATE A REQUEST (Illus. 7).



Illus. 7 TPG-25 web page: CREATE CERTIFICATE REQUEST

After a short time, the window in Illus. 8 appears with the successful certificate request. Here, you can see the private key of the client certificate, with which the certificate request will be made for the certificate server.

– Copy the key (circled in Illus. 8) and paste it into a text file.

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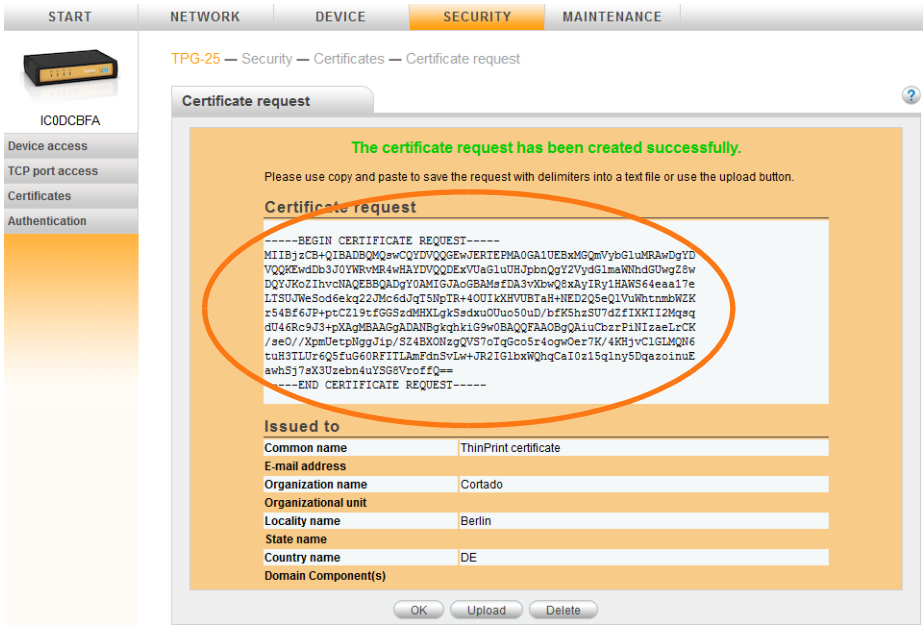


Illus. 8 TPG-25 web page: successful certificate request

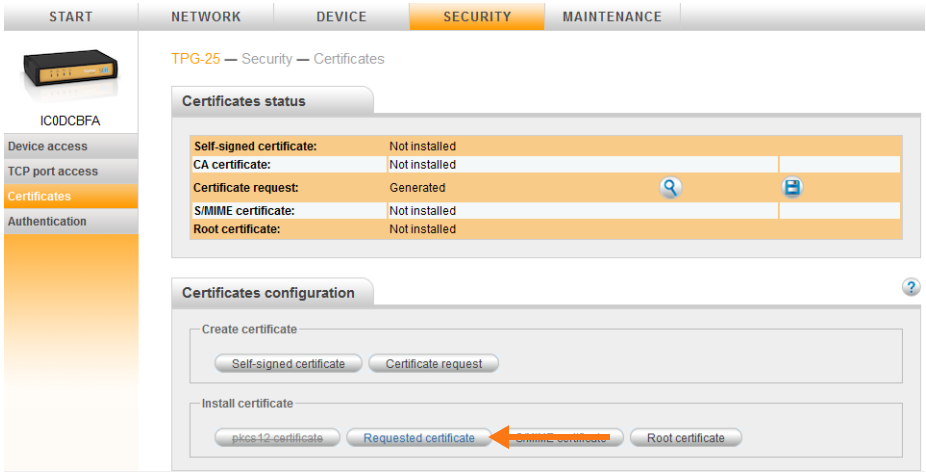
– Save the text file (e.g., an .rtf file) on any computer.

Follow these (briefly outlined) steps to get a certificate from the certificate server. This is described in detail in the *Creating SSL certificates for printing with ThinPrint* documentation (Page 16).

1. Place a certificate request (Base64 format) with a certification authority (CA/certificate server) and enter the contents of your text file.
2. Download the certificate issued by the CA.

Importing a certificate for the TPG

– Open the TPG-25 web page again and click REQUESTED CERTIFICATE (arrow in Illus. 9).



Illus. 9 TPG-25 web page: importing the .cer certificate

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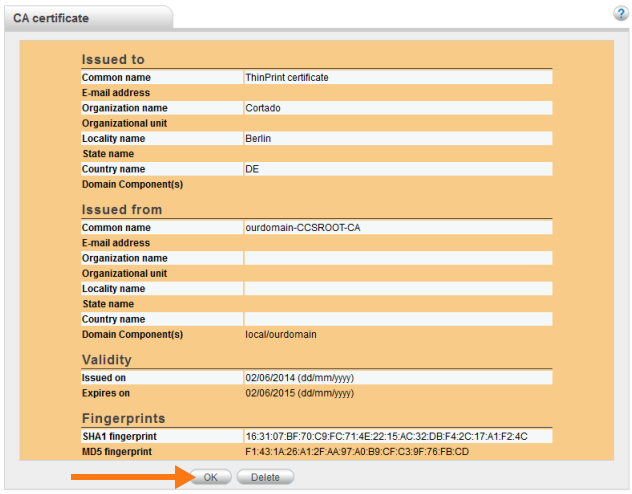
– Using BROWSE, select the .cer certificate that you just saved. Then click INSTALL.
– The information about your successfully imported certificate will be displayed. Confirm with OK (Illus. 10).



Illus. 10 TPG-25 web page: certificate successfully installed

Central print server

Creating printers and configuring V-Layer

– Create the relevant printers (printer objects) on the print server for both of the network printers connected to the TPG-25[3]. When doing so, install the printer drivers, too. **Connect both printers with a ThinPrint port.** In Port Manager (Illus. 13), select TCP/IP as port type (the protocol).

– Next, rename the printers in the following format:

```
printer_name#ip_address:printer_id
```

The IP address is the ThinPrint Client Gateway's (TPG-25), and the printer ID can be seen in Illus. 5. In our example, this creates the two printers[4] connected to the TPG (Illus. 11):

```
Lexmark T644#192.168.149.96:1
HP Color LaserJet 4700#192.168.149.96:2
```

3 You can automate this process with ThinPrint Management Center (Page 16)

4 The printer name before the # is unimportant for addressing print data; it only serves to distinguish the printers.

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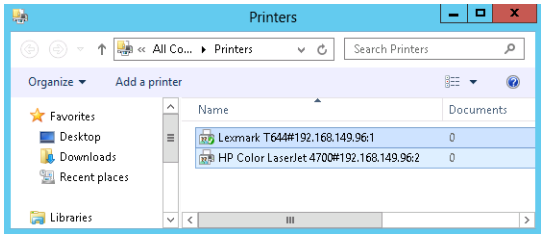
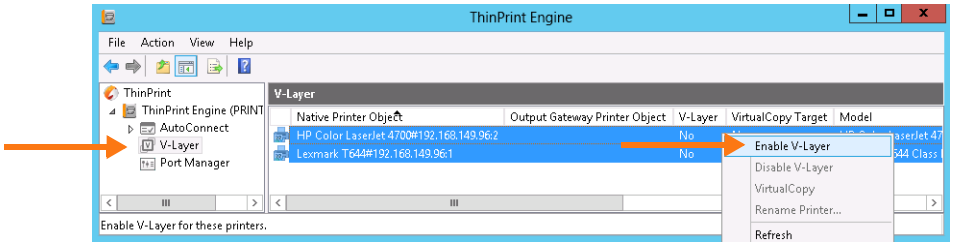


Illus. 11 Printers folder on the central print server

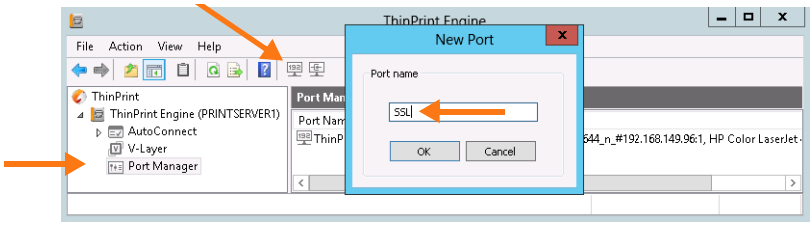
If you wish to use Driver Free Printing on terminal servers, virtual desktops or workstations, enable V-Layer for these printer objects (see Illus. 12). See also *ThinPrint Engine on print servers* manual.



Illus. 12 Enabling V-Layer for both printers (on a central print server)

Adding and configuring ThinPrint ports for encryption

1. Open ThinPrint Port Configuration. To print both with and without encryption, add a new ThinPrint port by clicking the relevant icon (top arrow in Illus. 13). Enter a suitable port name (here: SSL).



Illus. 13 Adding a new ThinPrint port

2. Double click the new entry in the Port Manager. The menu in Illus. 14 appears. Select USE ENCRYPTION and confirm with OK.

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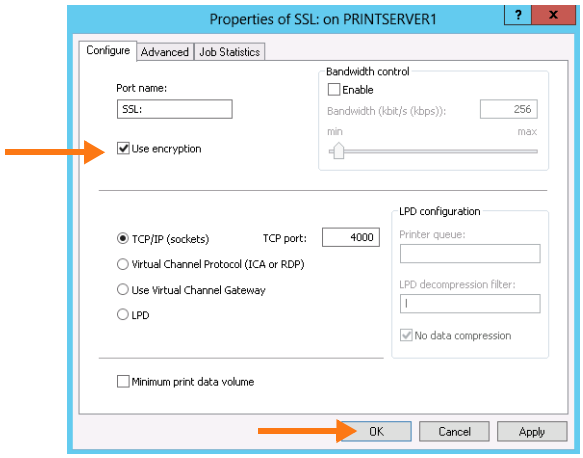
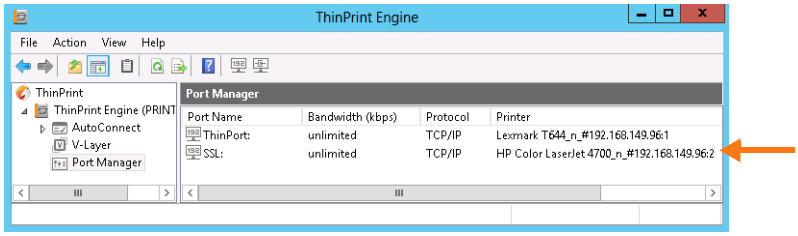


Illus. 14 Enabling SSL encryption

3. Open the Printers folder and in the properties of the native HP printer ("_n_" in the printer name), select the new "SSL" ThinPrint port as port.
4. Return to the Port Manager and refresh the view with the F5 key (Illus. 15). The HP printer is now connected to the ThinPrint port that sends SSL encrypted print data.



Illus. 15 New ThinPrint port with "reconnected" printer

Installing SSL certificates

1. Import two SSL certificates to the Windows certificate store:
   - A server certificate
   - A root certificate

   Proceed as described in the chapter on "SSL encryption" in the ThinPrint Engine on print servers manual (Page 16). The certificates must come from the same certificate server as that imported in the TPG-25 (Illus. 9).
2. To determine which of the installed certificates is used by ThinPrint Engine, open the Port Manager again and select ALL TASKS→ ENCRYPTION SETTINGS in the context menu (Illus. 16).

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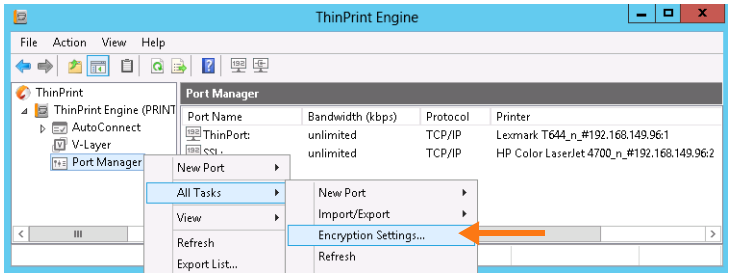
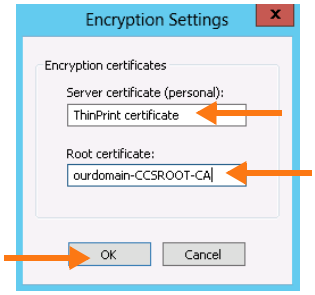


Illus. 16 Port Manager: select encryption settings

3. Enter the names of the server and root certificates (Illus. 17).

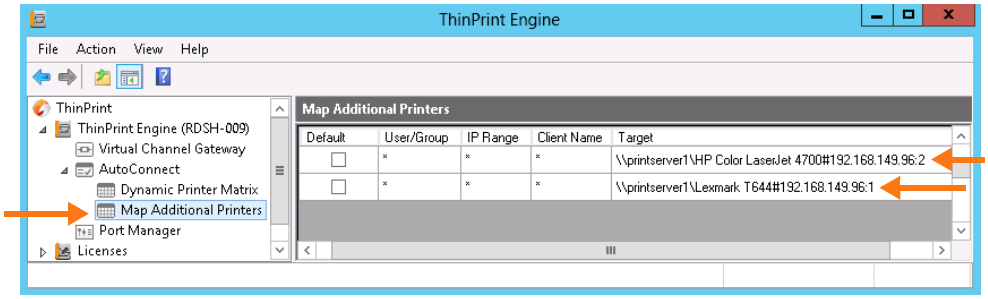


Illus. 17 Port Manager: enter the names of the certificates

Configuring AutoConnect on terminal server

The following settings must be made on the terminal server so that AutoConnect can create the necessary printers in the sessions. Enter both print server shares in the AutoConnect table MAP ADDITIONAL PRINTERS as follows:

`\\Printserver\PrinterShare` (Illus. 18).



Illus. 18 MAP ADDITIONAL PRINTERS: adding print server shares

Print test

Now test your ThinPrint Client Gateway installation. Print from within a session on the terminal server to each of the printers created by ThinPrint AutoConnect, **Lexmark T644** and **HP Color LaserJet** (Illus. 19).

Note that print data is sent to the Lexmark T644 **without encryption** but to the HP Color LaserJet **with encryption**.

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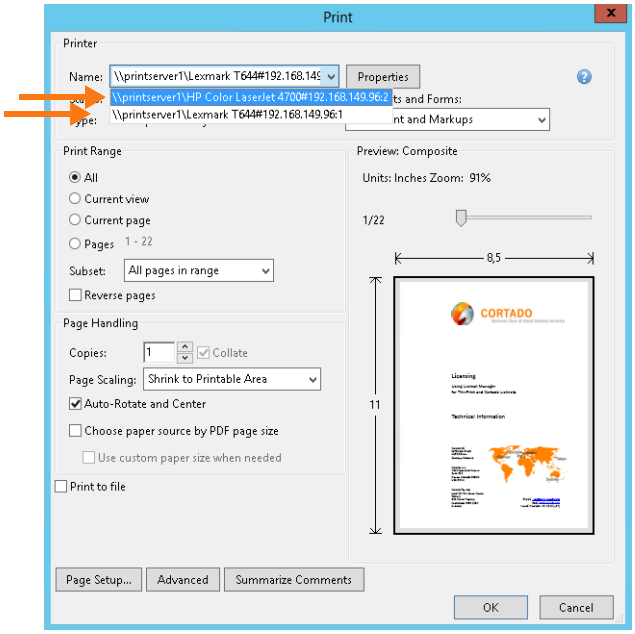

Illus. 19 Printers created in the terminal session by AutoConnect

How does print data find its way to the correct printer?

All print jobs are first sent “Driver Free” from the terminal server (or desktop) to the central print server – without bandwidth control, compression, or encryption. The print server renders the print data using the native printer driver and sends it in print format (RAW), compressed, encrypted if specified, and across controlled bandwidth to the TPG-25 (IP address: 192.168.149.96).

After decompressing and decrypting it if necessary, the TPG-25 forwards print data to the printer. Which printer receives what print job is decided by the printer ID (see Illus. 5 and 11):

Printer	Printer ID in the TPG-25	Name of the native printer on the server
Lexmark T644	1	Lexmark T644_n_#192.168.149.96:1
HP Color LaserJet 4700	2	HP Color LaserJet 4700_n_ #192.168.149.96:2

- Print data with the ID 1 is for Lexmark T644 and is sent from the central print server to the TPG-25 without encryption because its server-side printer (Lexmark T644_n_#192.168.149.96:1) is connected to the “ThinPort” (Illus. 15).
- Print data with the ID 2 is for HP Color LaserJet and is sent from the central print server to the TPG-25 with encryption because the server-side printer (HP Color LaserJet 4700_n_#192.168.149.96:2) is connected to the “SSL:” port (Illus. 15).

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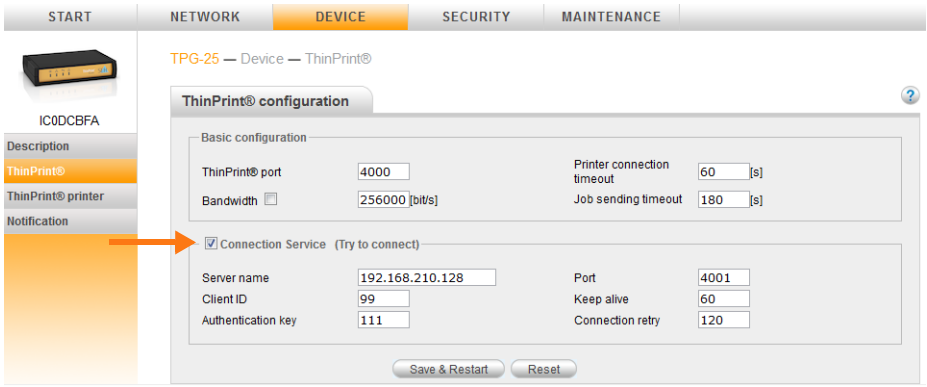
Done!
Next step? Try renaming the printers on the central print server by replacing the IP address with the TPG's host name (see also Illus. 4, Page 7). First, though, you must disable V-Layer for both printers (Illus. 12) and enable V-Layer after this configuration.

ThinPrint Connection Service

As an option, you could use the ThinPrint Connection Service with your TPG. This can be useful in masked networks[5] and certain firewall restrictions.Unlike the usual direction of communication, the Connection Service also allows connections from a remote location to the central server and therefore enables the TPG-25 to be addressed via TCP/IP, even in masked networks. The Connection Service also stabilizes the transmission of print data, even during connection breaks of up to 90 seconds. It is part of the license ThinPrint Premium; on the server, a Connection Service installation is necessary. On the client side, a ThinPrint Client is assumed, such as is integrated in the TPG.

In the TPG, select DEVICE→ THINPRINT and place a checkmark at CONNECTION SERVICE (arrows in Illus. 20).



Illus. 20 Configuring Connection Service

Illus. 20 shows the client-side configuration of the Connection Service. The service must be enabled here (arrow). Furthermore, the following input is required:

Server name	IP address of the server on which the Connection Service is running
Port	TCP port for communication with the Connection Service (default: 4001)
Client ID	Client ID to distinguish the ThinPrint Clients that are using the Connection Service – must be assigned on the server unambiguously for each client (here: TPG)

5 = Networks with Network Address Translation (NAT), which is mainly supported by routers

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Keep alive	Interval connection retries (default: 60 s; should not be changed)
Authentication key	Value used for authentication – similar to a PIN; will be specified on the server
Connection retry	Wait time for connection retries if the Connection Service cannot be reached (default: 300 s)

More information can be found in the *ThinPrint Connection Service* manual (see below).

Appendix

Customer service and technical support

Customer Service www.thinprint.com/—> RESOURCES & SUPPORT
www.thinprint.com/en-us/resourcessupport/supportrequest.aspx

ThinPrint website www.thinprint.com/→ RESOURCES & SUPPORT

SEH website www.seh-technology.com/→ SERVICES→ SUPPORT

Additional sources

The following user manuals and quick installation guides from SEH (among others) are available at www.seh-technology.com/→ SERVICES→ DOWNLOADS.

- TPG-25 User Manual (up to 2 network printers)
- TPG-25 Quick Installation Guide
- TPG-65 User Manual (up to 6 network printers)
- TPG-65 Quick Installation Guide
- TPG-125 User Manual (up to 12 network printers)
- TPG-125 Quick Installation Guide
- TPG-60 User Manual (up to 6 network printers, former design)
- TPG-60 Quick Installation Guide
- TPG-120 User Manual (up to 12 network printers, former design)
- TPG-120 Quick Installation Guide

The following ThinPrint manuals and technical information (among others) are available at www.thinprint.com/manuals.

- ThinPrint Engine on print servers
- Connection Service
- ThinPrint Management Center
- Creating SSL certificates for printing with ThinPrint
- Licensing

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- License Server
- Windows computer as a ThinPrint Client Gateway
- SEH ISD as a ThinPrint Client Gateway

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